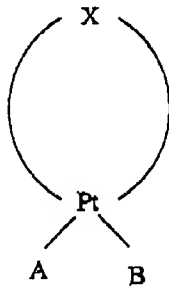


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providing a nucleotide;  
 providing a linker having formula I,



(I)

wherein X represents an aliphatic diamine, and A and B represent the same or different linker reactive moieties capable of reacting with the electron donating group of the spacer means or with the nucleotide, thereby attaching the spacer means or the nucleotide to the linker;

reacting the spacer reactive moiety with the label, thereby coupling the spacer means to the label;

reacting the electron donating moiety of the spacer means with one of the linker reactive moieties, thereby attaching the spacer means to the linker; and

reacting the nucleotide with the other linker reactive moiety, thereby attaching the nucleotide to the linker.

24. The method according to claim 23, wherein X represents an aliphatic diamine having 2-6 carbon atoms.

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- 3  
25. The method according to claim <sup>1</sup>~~23~~, wherein X represents an aliphatic diamine having the formula  $G_2NCH_2CH_2NG_2$ , wherein G represents H or an alkyl group of from 1 to 6 carbon atoms.
- 4  
26. The method according to claim <sup>1</sup>~~23~~, wherein X represents ethylenediamine.
- 5  
27. The method according to claim <sup>1</sup>~~23~~, wherein X represents N,N,N',N'-tetramethylethylenediamine.
- 6  
28. The method according to claim <sup>1</sup>~~23~~, wherein A and B represent  $NO_3^-$ ,  $SO_3^-$ ,  $Cl^-$ , I, other halogen or  $Me_2SO$ .
- 7  
29. The method according to claim <sup>1</sup>~~23~~, wherein A and B are the same.
- 8  
30. (Amended) The method according to claim <sup>1</sup>~~23~~, wherein the spacer means comprises no more than twenty carbon atoms.
- 9  
31. The method according to claim <sup>4</sup>~~30~~, wherein the carbon atoms are non-branched.
- 10  
32. (Amended) The method according to claim <sup>1</sup>~~23~~, wherein the spacer means comprises four carbon atoms and one heteroatom.
- 11  
33. The method according to claim <sup>1</sup>~~22~~, wherein the heteroatom is oxygen.
- 12  
34. (Amended) The method according to claim <sup>1</sup>~~23~~, wherein the spacer means is 1,8-diamino-3,6-dioxaoctane.
- 13  
35. (Amended) The method according to claim <sup>1</sup>~~23~~, wherein the spacer means is an oligolysine or a polylysine.

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<sup>14</sup>/<sub>36</sub>. The method according to claim <sup>14</sup>/<sub>23</sub>, wherein the electron donating moiety is an amino group or a thiolate group.

<sup>15</sup>/<sub>37</sub>. The method according to claim <sup>14</sup>/<sub>23</sub>, wherein the amino group is an aromatic amino group.

<sup>14</sup>/<sub>38</sub>. The method according to claim <sup>14</sup>/<sub>23</sub>, wherein the amino group is an imidazole or purine group.

<sup>17</sup>/<sub>39</sub>. The method according to claim <sup>1</sup>/<sub>23</sub>, wherein the spacer reactive moiety is NH<sub>2</sub>.

<sup>18</sup>/<sub>40</sub>. The method according to claim <sup>1</sup>/<sub>23</sub>, wherein the label is radioactive.

<sup>19</sup>/<sub>41</sub>. The method according to claim <sup>1</sup>/<sub>23</sub>, wherein the label is an enzyme.

<sup>20</sup>/<sub>42</sub>. The method according to claim <sup>1</sup>/<sub>23</sub>, wherein the label is a component of a specific binding pair.

<sup>21</sup>/<sub>43</sub>. The method according to claim <sup>1</sup>/<sub>23</sub>, wherein the specific binding pair is biotin and avidin or streptavidin.

<sup>22</sup>/<sub>44</sub>. The method according to claim <sup>1</sup>/<sub>23</sub>, wherein the label is a dye, a fluorochrome, or a reducing agent.

<sup>23</sup>/<sub>45</sub>. The method according to claim <sup>1</sup>/<sub>23</sub>, wherein the label is digoxigenin.

<sup>24</sup>/<sub>46</sub>. The method according to claim <sup>1</sup>/<sub>23</sub>, wherein the nucleotide is adenine, thymidine, cytosine, and either guanine or uridine.

Rule 1.72e

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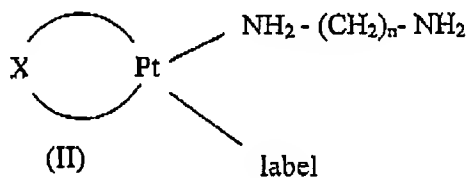
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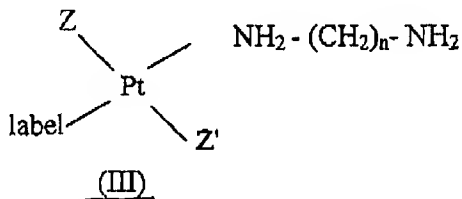
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<sup>25</sup>  
~~48.~~ The method according to claim ~~28~~<sup>1</sup>, wherein the nucleotide is a purine.

<sup>26</sup>  
~~49.~~ (Amended) The method according to claim ~~23~~<sup>1</sup> wherein the linker is reacted with a labeling moiety comprising moiety comprising



or the formula



wherein X represents an aliphatic diamine, Z and Z' represent a non-leaving ligand and n is an integer of from 2 to 10.

<sup>27</sup>  
~~50.~~ A method according to claim ~~49~~<sup>26</sup>, wherein Z and/or Z' represent an NH<sub>3</sub>, NH<sub>2</sub>R, NHR<sub>2</sub>, or NR<sub>3</sub> group, wherein R represents an alkyl group having from 1 to 6 carbon atoms.

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